November 19, 2018

Dear [Redacted]:

Re: Your request for access to information under Part II of the Access to Information and Protection of Privacy Act (File # NR-167-2018)

On September 24, 2018, the Department of Natural Resources received your request for access to the following records/information:

For the last twelve months please provide a copy of all records in the possession of the Department of Natural Resources relating to the NL Hydro HYDRAULIC UNITS operations including but not limited to any reference to DAFOR. Please note I’m referring to the units as follows but if there are additional units not referenced here I want them included; Bay d’Espoir (units 1,2,3,4,5,6, and 7) Cat Arm (unit 1 and 2) Hinds Lake Upper Salmon Granite Canal Paradise River.

On October 16, 2018, the department has received approval from the Information and Privacy Commissioner to extend the timeline for your request by 20 business days.

I am pleased to inform you that a decision has been made by the Department of Natural Resources, confirmed by the Deputy Minister, to provide access to the requested records. The records are attached.

As set out in section 42 of the Act you may ask the Information and Privacy Commissioner to review the department’s decision to provide access to the requested information. A request to the Commissioner must be made in writing within 15 business days of the date of this letter or within a longer period that may be allowed by the Commissioner. Your request should identify your concerns with the department’s response and why you are requesting a review.

The request for review may be addressed to the Information and Privacy Commissioner is as follows:

P.O. Box 8700, St. John’s, NL, Canada A1B 4J6 t 709.729-1466
Pursuant to section 52 of the Act, you may also appeal directly to the Supreme Court Trial Division within 15 business days after receiving the department’s decision.

Please be advised that responsive records will be published following a 72 hour period after the response is sent electronically to you or five business days in the case where records are mailed to you. It is the goal to have the responsive records posted to the Completed Access to Information Requests website within one business day following the applicable period of time. Please note that requests for personal information will not be posted online.

For further details about how an access to information request is processed, please refer to the Access to Information Policy and Procedures Manual at http://www.atipp.gov.nl.ca/info/index.html.

If you have any questions, please feel free to contact me at 709-729-0463 or rhynes@gov.nl.ca.

Sincerely,

Rod Hynes
ATIPP Coordinator
Information Note
Department of Natural Resources

Title: Newfoundland and Labrador Hydro 2017/18 Winter Readiness Planning Report

Issue: To summarize Newfoundland and Labrador Hydro’s (NLH) Winter Readiness Planning Report (the Report) filed with the Board of Commissioners of Public Utilities (PUB) on December 8, 2017.

Background and Current Status:
• The Report advises that NLH expects a peak load of 1,808 MW for winter 2017/18, with available peak capacity of 1,963 MW plus 111 MW of capacity assistance resulting in a reserve margin of 266 MW or 16%. Capacity assistance refers to NLH's agreements with large industrial customers who have agreed to reduce their demand when NLH requests it. Accordingly, NLH states “it will be ready for winter in the critical areas of generation and transmission availability.”

• However, the Report notes some of NLH's annual work plan for winter readiness was not complete by the December 1, 2017 winter readiness target date and work on those components will continue.

• NLH has committed continue to track all required winter readiness activities, manage identified risks, and provide an update to the PUB on January 19, 2018 for those winter readiness items extending beyond the filing date of the Report.

Analysis:
• The degree to which uncompleted work plan items could impact available peak capacity, if at all, is not detailed in the Report. Further, if there is an impact, there is no indication as to the potential duration of this impact.

• The Report notes Bay d’Espoir units 1 and 2 (153 MW combined generation capacity) were offline as of the date of filing, but repairs were scheduled to be complete on that same day. NLH has informed NR subsequently that these have been repaired and returned to service.

• The report also indicates that NLH’s hydro reservoirs were lower than normal in the fall of 2017 and in order to raise them to a higher level, it has been operating its thermal generation at Holyrood above the minimal level in order to reduce water usage for hydro generation. NLH notes this activity has no impact on reliability.

• NLH provided additional information on this issue in its December 15, 2017 Near-term Generation Adequacy Report, noting that:
  o It does not anticipate reliability issues to arise from the current planned level of Holyrood generation as the plant's maintenance is completed with the expectation it could have to operate to the maximum possible capability;
  o The planned generation levels for the Holyrood units in response to current reservoir conditions are consistent with the normal operating limits; and,
  o Operating Holyrood at higher load levels can actually reduce certain forms of maintenance, thus potentially increasing reliability.
• The Near-term Generation Adequacy Report did not discuss whether increased thermal production could impact rates, but did note that the analysis presented to date does not include energy available over the Maritime Link (ML), and that this could provide a cost effective solution to off-set Holyrood generation. How this could impact the value of the Off-Island Purchases Deferral account that is proposed as a means of funding future rate management efforts is not discussed in the report.

Action Being Taken:
• NR is following up with NLH to seek more information on the potential impact of uncompleted work-plan items and any potential impact of existing and continued low reservoir levels.

Prepared/Approved by: M. Janes / C. Snook / J. Cowan
Ministerial Approval: Received from Hon. Siobhan Coady

December 27, 2017
January 19, 2018

The Honourable Siobhan Coady, Minister
Department of Natural Resources
Government of Newfoundland and Labrador
Natural Resources Building
P. O. Box 8700,
St. John’s, NL
A1B 4J6

Dear Ms. Coady:

Re: Newfoundland and Labrador Hydro’s Winter Readiness Planning Report - Update

For your information, please see the attached update on the Winter Readiness Planning Report that was submitted to The Board of Commissioners of Public Utilities on January 19. The report was filed on December 8, 2017, but noted some items that would be deferred to 2018 as well as some that would be completed prior to December 31, 2017.

Details of the update are included in the attached. I would point out that in all cases, the risks have been assessed and are low. In the unlikely event of an issue, we are ready to respond promptly.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Jim Haynes
President, Newfoundland and Labrador Hydro

JH/jmf
January 19, 2018

The Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John’s, NL A1A 5B2

Attention: Ms. Cheryl Blundon
Director Corporate Services & Board Secretary

Dear Ms. Blundon:


On December 8, 2017, Newfoundland and Labrador Hydro (Hydro) filed the Winter Readiness Planning Report – November Update (the Report). While all winter readiness work for the Holyrood Thermal Generating Station, within the Bay d’Espoir Hydroelectric system, and on the transmission system were completed by the submission date, the report noted that several items for Gas Turbines, Terminal Stations, and Capital Projects were scheduled to be completed within 2017, but after submission of the Report on December 8, 2017, and that a further update would be provided to the Board of Commissioners of Public Utilities (the Board) regarding these items. For the items carried into 2018, as noted in the Report, assessment of the risk has been completed and items have been moved into the 2018 Integrated Annual Work Plan. This letter provides Hydro’s update to the December 8, 2017 Winter Readiness Report for items planned to be completed by December 31, 2017.

Status Update – Gas Turbines
As noted in section 2.2 of the Report, three items were outstanding after December 8, 2017 with respect to Hydro’s Gas Turbines. The status of those items is provided below:

- Item: Replace service computer for the Hardwoods Gas Turbine
  - Update: This preventive maintenance work was to swap the computer on the Hardwoods Gas Turbine with the spare computer (ensures a healthy backup computer is ready and available), and was completed by the Terminal Station group on December 13, 2017.

- Item: Annual inspection of the lube oil for the Holyrood Gas Turbine
  - Update: Although scheduled to be complete by December 22, 2017, this work was actually completed on December 3, 2017, but inadvertently did not get reported as complete in the December 8, 2017 Winter Readiness Update Report.

- Item: Annual inspection of the emergency diesel for the Holyrood Gas Turbine
  - Update: The annual inspection was completed and passed on December 13, 2017.
Ms. C. Blundon
Public Utilities Board

Status Update – Terminal Stations
As indicated in Section 2.4 of the Report, three winter readiness items in the Terminal Station were incomplete as of the December 8, 2017 report. The status of those items is below:

- Item: Four minor modifications of the Breaker Failure System on Hardwoods Transformers T1, T2, T3, and T4 were delayed due to delays in capital project upgrades as a result of delays in receiving the required materials
  - Update: Minor modifications of the breaker fail system for T1, T2, T3 and T4 were completed on December 14, 2017.

- Item: Preventive maintenance work on Hardwoods B889 Operate Breaker delayed due to coordination of work with Newfoundland Power
  - Update: The preventive maintenance work was completed on December 11, 2017.

- Item: Preventive maintenance work to swap computers on the Hardwoods Gas Turbine was delayed due to system loading and conditions.
  - Update: The service computer work was jointly completed with the Gas Turbines group, which was completed on December 13, 2017 as noted above.

Status Update – Capital Projects
As described in the Report, some capital projects were noted as having winter readiness activities that were incomplete on December 8, 2017 and would be completed in 2017, or were carried over to 2018. The status of those items is as follows:

Capital Projects Completed
- Item: Refurbishment of Penstock 1 – Bay d’Espoir
  - Update: Penstock 1 required emergency refurbishment due to a weld failure. This work was completed as planned and the penstock went into service on December 8, 2017; however, cleanup and demobilization continued after this date until December 15, 2017.

- Item: Purchase Capital Spares – Hydraulic: Bay d’Espoir Unit 7 Excitation Transformer and Hinds Lake Excitation Transformer
  - Update: As noted, the Bay d’Espoir Unit 7 Excitation Transformer was due to be delivered on December 22, 2017, and was received on site on January 4, 2018. The Hinds Lake Excitation Transformer was due to be delivered on December 15, 2017, and was received on site on January 10, 2018.

- Item: Purchase Capital Spares – Terminal Stations
  - Update: The remaining item in this work scope was the purchase of isolated phase bus ducts for the spare transformer. This equipment was received in Bishop’s Falls on December 12, 2017.

- Item: Purchase Backup Diesel for Station Service - Grand Falls and Buchans
  - Update: The Backup Diesel unit was expected to be delivered on December 15, 2017 and was received on site on December 19, 2017.
Item: Perform Wood Pole Line Management
  - Update: Remaining work on TL 203 planned for completion by December 8, 2017 was delayed until TL 267 was in service to reduce the execution risk and was partially completed during the week of December 11, 2017. The remaining work was carried over to 2018 with required pole replacements completed on January 19, 2018. Replacement of two crossarms and a crossbrace are in progress and are scheduled for completion by January 24, 2018.

Item: Construct 230 kV Transmission Line – Bay d’Espoir to Western Avalon
  - Update: This transmission line, known as TL 267, went into service on December 6, 2017.

Capital Projects Carried into 2018 Annual Work Plan:
The following projects have not been completed as of this report date, and are added to the 2018 Annual Work Plan. Notes are referenced to the December 8, 2017 Winter Readiness Update Report, Appendix A.

- Purchase Capital Spares – Hydraulic
  - From Note 1C – The Hinds Lake exciter slip rings are scheduled for delivery on May 15, 2018.

- Upgrade Work – Cat Arm
  - From Note 2A – A risk assessment was completed as noted in the December 8, 2017 update report, with completion of the required work planned for 2018.

- Refurbishment of the Main Generator Breaker for Upper Salmon
  - From Note 3 – Parts were received and are available in the event of failure as noted in December 8, 2017 update report. Work will be completed in 2018.

- Procurement of 12 MW of Diesel Generation – Holyrood
  - From Note 8A – Diesel generation units are available for emergency and peak load generation, as well as black start of the Holyrood plant. Remaining work will be completed in spring of 2018.

- Replacement due to In-Service Failures – Terminal Stations
  - From Note 5 – A new 230 kV circuit breaker, a new 138 kV circuit breaker and a new 69 kV circuit breaker are on order and were expected on January 12, 2018. The new delivery date is January 29, 2018. Hydro has access to other spare circuit breakers that are available in the event of failure.

- Replace Air Conditioning Units – Hydro Place
  - From Note 7 – The work to replace the air conditioner in the Uninterruptable Power Supply room in Hydro Place was expected to be completed by December 15, 2017; however, this work has been delayed until January 26, 2018. It should be noted that temporary air conditioning is in place and available until the new permanent unit is installed, so there is no risk due to the carryover of this project.
Ms. C. Blundon
Public Utilities Board

Summary
As indicated above, much of the outstanding work has been completed, with some work remaining; however, in all cases the risks have been assessed and are low, with all equipment to remediate failures available in the unlikely event of an issue. Unless otherwise noted, any work that remains incomplete will become part of the 2018 integrated annual work plan, for execution in 2018. We continue to assess the condition of the assets discussed with overall reliability and customer outages in mind, and do not believe that there are any major concerns.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Michael S. Ladha
Legal Counsel & Assistant Corporate Secretary
MSL/skc

cc: Gerard Hayes – Newfoundland Power
    Paul Coxworthy – Stewart McKelvey Stirling Scales
    Dean Porter – Poole Althouse

Ecc: Denis Fleming – Cox & Palmer
    Roberta Frampton Benefiel – Grand Riverkeeper Labrador

Dennis Browne, Q.C. – Consumer Advocate
Danny Dumaresque
Information Note
Department of Natural Resources

Title: Newfoundland and Labrador Hydro 2017/18 Winter Readiness Planning Report Updates

Issue: To provide an overview of Newfoundland and Labrador Hydro’s (NLH) Winter Readiness Planning Report update.

Background and Current Status:
• The Winter Readiness Report noted that some of the NLH’s annual work plan for winter readiness was not complete by the December 1, 2017 winter readiness target date and that work on those components would continue.

• NLH committed to continue to track all required winter readiness activities, manage identified risks, and provide an update to the PUB on January 19, 2018 for those winter readiness items extending beyond the filing date.

• The update provides the current status for items planned to be completed by December 31, 2017, noting that remaining items will be carried over to 2018 capital projects.

• Capital Project items which will be rolled over include:
  o Purchase Capital Spares – Hydraulic (scheduled for delivery on May 15, 2018);
  o Upgrade Work – Cat Arm (follow up work expected to be completed in 2018 after a December 2017 risk assessment);
  o Refurbishment of the Main Generator Break for Upper Salmon (work to be completed in 2018 but parts are available in the event of a failure);
  o Procurement of 12MW of Diesel Generation – Holyrood (work to be completed in spring 2018 but diesel generation units are available in the event of an emergency or peak load);
  o Replacement due to In-Service Failures – Terminal Stations (breakers scheduled for delivery on January 29, 2018, NLH notes spare breakers available in event of failure); and,
  o Replace Air Conditioning Units – Hydro Place (work delayed until January 26, 2018).

Analysis:
• NLH notes that reliability risks have been assessed and are low for items that were carried over to 2018 and that in all cases equipment is available to remediate failures should there be an issue. In addition, NLH commits to continuing to assess the condition of the assets raised in the update with reliability and customer outages in mind.

Action Being Taken:
• NR will continue to follow up with NLH to seek more information on the potential impact of uncompleted work-plan items.

Prepared/Approved by: L. MacDonald /
Ministerial Approval: January 22, 2018
Information Note
Department of Natural Resources

Title: Newfoundland & Labrador Hydro’s Near-Term Generation Adequacy Report

Issue: To provide an overview of Newfoundland & Labrador Hydro’s (NLH) semi-annual generation adequacy report on Island Interconnected System to the Board of Commissioner of Public Utilities.

Background and Current Status:
- Following power outages and supply issues on the Island Interconnected system (IIS) in late December 2013 and early January 2014 the Board of Commissioner of Public Utilities (PUB) began an investigation and hearing into causes of the outages.

- The PUB has the authority to conduct an investigation into the service provided by a utility, of its own motion, where it determines that it is appropriate, or where a duly constituted complaint has been filed. Sections 82, 84 and 87-89 of the Electrical Power Control Act specifically address investigations and complaints. This investigation has been conducted in accordance with the Board’s authority under these provisions.

- In its February 19, 2014 order (P.U. 3(2014)) the PUB identified the intervenors and set out the two phased investigation process to be followed in the matter. Phase one dealt with the immediate reliability issues for the IIS prior to interconnection with Muskrat Falls. Reliability issues post Muskrat Falls interconnection would be addressed in Phase Two.

- NLH’s generation planning and supply were key issues throughout the investigation and the PUB has expressed concerns on its generation capacity to meet customers demand and adequate reserve capacity in the next few years. The PUB will continue to evaluate NLH’s generation planning and supply as part of Phase Two of the investigation. The PUB has directed NLH to immediately commence its supply review recommended by a third party consultant, and advised NLH to file its generation adequacy report semi-annually.

- To comply with the PUB’s directives, NLH files its Near-term Generation Adequacy Report on May 15 and November 15 each year. This (May 15) report addresses NLH’s capacity to provide adequate supply to its IIS customers by meeting peak demand and energy requirements.

- The report is structured with an introductory “IIS Overview” section. A second section called “System Planning Criteria” discusses the planning criteria. The next section called “Asset Reliability” details the factors affecting asset reliability and current state of assets. For discussion, the assets are grouped by facility types of Hydraulic, Thermal and Gas Turbine. There is a fourth section called “Load Forecast” followed by another section on “System Constraints and Future Supply Risk”. The last section concludes the report.

- In the “Overview” section NLH reports on its statutory mandate given by section (5)1 of the Hydro Corporation Act to generate electricity in the province. It informs of its transmission, distribution, operation and maintenance activities comprising of 3,500 KM of transmission and 3,400 KM distribution lines and serving utility customer Newfoundland
Power (NP), five regulated industrial customers and 38,000 direct residential customers on the island.

- The next section, lays out NLH’s System Planning criteria which includes load forecasting, criteria for generation and transmission planning. The Generation planning criteria is as follows:
  - Capacity: The IIS should have sufficient generating capacity to satisfy a Loss of Load Hours (LOLH) expectation target of not more than 2.8 hours per year, and The IIS should have sufficient generating capacity to maintain a minimum reserve of 240 MW at the P90 system peak (See Annex 1 for details on LOLH and P90)
  - Energy: The Island Interconnected System should have sufficient generating capacity to supply all of its firm energy requirements with firm system capability.

NLH’s Transmission Planning criteria addresses power flow for normal operations, transmission element failures and emergency situations.

- In the “Asset Reliability” section of the report, NLH states that it reports to the PUB on the rolling 12 month performance of its assets, detailing any reliability issues in the previous 12 months period.

- Following is a summary of the issues with the assets identified in the report.
  - NLH undertook significant work in 2016 and 2017 to address deteriorated welds in Penstocks 1 and 2 at Bay d’Espoir. In May 2018, cracks were confirmed in Penstock 3 and works is underway with funding from the “Allowance for Unforeseen Item Account” to address the issue. Penstock 4 was inspected in 2014 and found healthy. NLH plans to inspect penstocks at Upper Salmon, Paradise River, Snook’s Arm and Granite hill in the coming years.
  - Cracked rotor key welds observed on the generation unit at Upper Salmon plant. The 2018 capital plan includes upgrades to address these issues.
  - One existing cooler has been repaired and additional one was purchased for Hinds Lake plant.
  - NLH plans to replace the spherical valve controls in 2018 at Cat Arm.
  - Boiler tubes at the Holyrood Station (HTGS) were replaced in 2016.
  - Variable Frequency Drives at Holyrood were modified throughout 2016-17, but continue to have issues. NLH is closely monitoring the status.
  - Supplemental Capital Budget Application is being prepared to replace air heating equipment at Holyrood.
  - The turbine control system at Holyrood had issues and has been addressed.
  - Two exciter control systems at HTGS were installed in 1999, 2000 and another one was replaced in 2013 to ensure reliable operation.
  - Flanges on Unit 1 and 2 at HTGS experienced issues. One is replaced while the replacement of the other is planned for 2018.
  - A stop Valve in Unit 1 boiler at HTGS failed in January 2018. Originally supplied in 1969, the valve was replaced.
  - NLH plans to provide current assets condition and long term plans for the Stephenville and Hardwood gas turbine in its 2019 Capital Budget application to the PUB, after identifying issues. Some work has been completed on the turbines.
  - NLH has evaluated the health of generating units across all classes. Annex 2 – table 1 summarizes the projected availability of its generating assets from a
reliability perspective. Estimated value of the five year Capital expenditure on generation assets is presented in table 2.
  o In its load forecast, NLH and NP both do not expect load growth in the next five years consistent with poor provincial economic outlook, however NLH’s peak demand forecast due to severe weather indicates an additional 60MW load requirement.
  o NLH notes that capacity may be available on a short-term basis to prevent a shortfall in generation, or to displace more costly sources of generation.
  o Availability and capacity of the LIL has the largest impact on the supply adequacy of IIS.

Analysis

- The report noted that there was sufficient generation to meet peak demand.

- Some of the supply scenarios that NLH analyzed, result in violation of planning criteria. NLH continues to increase its operational awareness to proactively respond to any issue that may arise in future.

- NLH has conducted a thorough assessment of its assets to identify potential risks to the reliable operation of its key generation assets. NLH is confident in its ability to meet IIS energy requirements.

- In addition to the base forecast, NLH has constructed three sensitivity demand forecasts to examine the effects of different load growth projections. NLH has also performed analysis on seven cases to determine the effects of different system conditions on its capability to supply customers.

- The 2018 in-service of the Maritime Link and the Labrador-Island Link, combined with recapture energy and contracted supply from external markets, ensure NLH is well positioned to reliably supply customers through Winter 2021-2022 in absence of generation from the Muskrat Falls Generation Station.

Action Being Taken:

- The note is provided for information purposes only.

Prepared/Approved by: Y. Khan/ M. Janes

Ministerial Approval:

May 30, 2018
Annex 1

Table 1: Summarized Asset Reliability Metrics

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<tr>
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<td>Bay D’Espoir Hydraulic Units</td>
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<tr>
<td>Remaining Hydraulic Units</td>
<td>DAFOR = 0.73%</td>
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<tr>
<td>Holyrood Thermal Units</td>
<td>DAFOR= 15%,18%,20%</td>
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<td>Holyrood GT</td>
<td>DAUFOP(^2) = 5%</td>
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<td>Base DAUFOP = 30%</td>
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<td>Sensitivity DAUFOP = 50%</td>
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<td>Hardwoods GT</td>
<td>Base DAUFOP = 30% Sensitivity</td>
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<td>DAUFOP = 50%</td>
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Table 2: NLH Five year Capital Plan (Generation)

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<th>Expended to 2017</th>
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<th>2020</th>
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</tbody>
</table>

Source: NLH 2018 Capital Budget Application p-83

\(^1\) Derating Adjusted Force Outage Rate (DAFOR) is a reliability KPI for generation assets that includes NLH’s thermal and hydroelectric generation assets on the interconnected systems. DAFOR measures the percentage of the time that a unit or group of units is unable to generate at its Maximum Continuous Rating (MCR) due to forced outages. The KPI is weighted to reflect differences in generating unit sizes.

\(^2\) DAUFOP is the probability that a generating unit will not be available due to forced outages or forced deratings when there is demand on the unit to generate. Given DAUFOP as an indication of GT reliability would reflect all periods where GT unit deratings impact available system generation, Hydro has decided to use DAUFOP as the basis for all of the analysis in this report.